Remarks

In response to the Office action mailed July 11, 2006 Applicants here amend claims 1 and 12 and cancel claims 2 and 17. Support for amendment to claim 1 is found in claims 1, 2, and 17 of the application as originally filed. Support for amendment to claim 12 is found in claims 12 and 17 of the application as originally filed.

No new matter has been added by the present amendment, and no new material presented that would necessitate an additional search on the part of the Examiner.

Upon entry of this Amendment and Response, claims 1, 3-16, and 18 remain pending.

Claims as here amended are novel

As a preliminary matter, Applicants believe that a brief description of independent claims 1 and 12, as here amended, would be helpful, prior to characterizing each cited reference and comparing the claims to the references.

Claim 1 as here amended is directed to an apparatus for intermixing small objects and a liquid including at least one receptacle for receiving and retaining the small objects, in which the small objects are affinity beads, at least a portion of the receptacle being permeable to permit the liquid to flow through the portion to intermix with the affinity beads when the receptacle is inserted into a vessel containing the liquid, in which the liquid is a lysate containing proteins to be purified.

Claim 12 as here amended is directed to an apparatus for intermixing small objects with a liquid including a plurality of receptacles containing the small objects, in which the small objects are affinity beads, each of the receptacles having a lower portion thereof that is permeable to permit the flow of the liquid therethrough, in which the liquid is a lysate containing a protein to be purified, a vessel containing the solution, and means for repeatedly inserting the receptacles into the liquid in the vessel and then withdrawing the receptacle from the liquid to cause the liquid to first flow into the receptacle through the lower portion when the receptacle is inserted into the liquid and then to flow outwardly from the receptacle through the lower portion when the receptacle is withdrawn from the liquid.

According to criteria established in the Manual of Patent Examining Procedure, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either

expressly or inherently described, in a single prior art reference." *Manual of Patent Examining Procedure* § 2131 (8th ed., Rev. 4, Oct. 2005), citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987). [emphasis added] Thus, the standard for rejection under 35 U.S.C. § 102 is identity.

Applicants show below that the subject matter of the present claims is not the same as the subject matter of each of the references cited.

Shimazaki (U.S. patent number 5,957,038, issued September 28, 1999)

The Office Action on p. 3 ¶2 rejects claims 1, 3-7, and 10 under 35 U.S.C. §102(b) in light of Shimazaki (U.S. patent number 5,957,038, issued September 28, 1999). Applicants respectfully traverse.

Shimazaki shows a cooking system having a pot with a reversible top (Shimazaki, Abstract). The pot and top can be used collectively to function as a cooking pot, colander, steamer, and strainer (Ibid., Abstract), and a cooking insert with perforations used to cook and drain food (Ibid. column 1 lines 26-29). The food is placed into the insert, which is then placed into the pot, and after the water is boiled and food is cooked, the insert is removed, allowing water to drain through the perforations (Ibid. column 1 lines 29-32). Shimazaki's perforations are of a size to keep food, such as vegetables and pastas, from passing through (Ibid. column 4 line 65 to column 5 line 3). Shimazaki's purpose is to prevent scalding of the user when cooking.

In contrast to Shimazaki, claim 1 as here amended is directed to an apparatus for intermixing small objects and a liquid, in which the small objects are affinity beads and the liquid is a lysate containing proteins to be purified. Nowhere does Shimazaki show an apparatus for intermixing small objects and a liquid, in which the small objects are affinity beads. Rather, Shimizaki shows an apparatus for cooking vegetables and pastas. Nowhere does Shimizaki show an apparatus for purification of proteins. In contrast to claim 1 as here amended, Shimizaki shows an apparatus for draining water from cooked food, i.e. in fact food that has been boiled.

The purpose of the perforations in Shimizaki's insert is to drain cooked food in a manner that prevents contact by the user with boiling water. Shimizaki states that these inserts are of a "conventional size" (Ibid. column 4 line 65 to column 5 line 3). One of ordinary skill in the art

of cooking apparatuses would have understood at the time the present application was filed, that conventional size as it relates to cooking strainers is measured on a size scale in a unit similar to millimeters and centimeters.

In contrast, the subject matter of claim 1 has a receptacle with a permeable portion for purification of a protein that would have been understood by one of ordinary skill in the art of biochemistry at the time the application was filed to be microns in size, which are a thousand-fold smaller than millimeters (1 micron = 0.001 millimeter). For example, meshes for purification of proteins are described in the present application as filed were 25, 33, and 41 microns in size respectively. Specification as originally filed p. 5 ¶ [019]. One of ordinary skill in the art of cooking would have known that Shimazaki's perforations are millimeters in size. In fact, any affinity beads with bound proteins would pass through the perforations in Shimizaki's insert along with the liquid, and be found in Shimizaki's retaining vessel.

Most important, nothing in Shimazaki is a protein that binds to affinity beads for purification. In fact, the boiling process that is the problem to be solved in Shimazaki would destroy each of the affinity beads and the proteins, and would also have destroyed any affinity between the beads and the proteins.

Because Shimazaki is not the same as claim 1 as here amended for any of the above reasons, claim 1 as here amended is novel under 35 U.S.C. §102(b). Claims 3-7 and 10 depend directly from claim 1 and incorporate the subject matter of claim 1 as here amended and contain additional subject matter, and therefore also are novel in view of Shimazaki.

Applicants respectfully request that rejection of claims 1 as amended and claims 3-7 and 10 under 35 U.S.C. §102(b) be withdrawn.

Frondoza et al. (U.S. patent application number 2005/0147959, published July 7, 2005 and filed March 25, 2002)

The Office Action on pp. 3-4 ¶3 rejects claims 1, 3-10, 12, 15, 16, and 18 under 35 U.S.C. §102(e) in light of Frondoza et al. (U.S. patent application number 2005/0147959, published July 7, 2005 and filed March 25, 2002). Applicants respectfully traverse.

Frondoza shows a two-component multi-well culture plate system (Frondoza et al. paragraph [0038] and Fig. 1). A microtiter plate is fitted with an insert component having

molded wells that fit into each well of the multi-well culture plate (Ibid. paragraph [0051]). At the bottom of each extension is placed a porous screen that covers the bottom of the well of the multi-well culture plate (Ibid. paragraph [0051]).

Cells and growth medium for culturing of the cells are dispensed into wells of the inserts and grown on microcarrier material for a period of time in order to form articular cartilage (Ibid. paragraph [0052] and [0064]). After growing, the cells on the insert are separated from the microtiter plate, to drain the fluid components of the growth medium into the microtiter well (Ibid. paragraph [0052] and [0064]).

In contrast to Frondoza, the subject matter of claims 1 and 12 as here amended is an apparatus for intermixing small objects and a liquid, in which the small objects are affinity beads and the liquid is a lysate containing proteins to be purified. Nowhere does Frondoza show an apparatus for purification of proteins. Rather, Frondoza shows an apparatus for culturing cells to obtain tissue. Culturing cells is not the same as purification, because inoculation of cells and addition of culture medium is adding complex organic matter, which is inapposite to the process of purification.

Factual analysis of Frondoza indicates that this reference fails to show any affinity beads, and the term "affinity bead" is not even mentioned in this reference. In contrast to claims 1 and 12 as here amended, Frondoza shows microcarriers that support growth of articular cells to make articular cartilage, for example: biopolymers such as collagen, gelatin, chitin, chitosan or chitosan derivatives, or fibrin; or particles of tissues such as bone or demineralized bone, cartilage, tendon, ligament, fascia, intestinal mucosa or other connective tissues. (Ibid. paragraph [0083]). The above microcarrier materials are not the same as the affinity beads that are the subject matter of claims 1 and 12 as here amended because Frondoza shows culturing cells, and not purification of proteins.

For these reasons, Frondoza is not the same as claims 1 and 12 as here amended, and therefore these as here amended are novel under 35 U.S.C. §102(e). Claims 3-10, 15, 16, and 18 depend directly or indirectly from claims 1 or 12 and incorporate the subject matter of claims 1 or 12 as here amended and contain additional subject matter, and therefore these claims also are novel in view of Frondoza.

Therefore rejection of claims 1 and 12 as here amended and claims 3-10, 15, 16, and 18 under 35 U.S.C. §102(e) can be withdrawn, an action which is respectfully requested.

Feygin et al. (U.S. patent number 6,315,957, issued November 13, 2001)

The Office Action on p. 4 ¶4 rejects claims 1, 3-7, 10, 12, 15, and 16 under 35 U.S.C. §102(b) in light of Feygin et al. (U.S. patent number 6,315,957, issued November 13, 2001). Applicants respectfully traverse.

As a preliminary matter, Feygin et al. issued as a patent in November 2001. The current application claims priority to an application filed July 2002, which filing date is within one year of patenting of Feygin et al. To anticipate under 35 U.S.C. §102(b) the invention must have been patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. For at least this reason, Feygin et al. is not proper prior art under 35 U.S.C. §102(b).

Feygin et al. shows an article for segregating solid support media from liquid (Feygin et al. Abstract). The article includes a filter pocket plate consisting of a plate with a plurality of holes in which a mesh-like material projects through each hole in the plate (Ibid. column 1 lines 63-67, and Fig. 2). The pocket plate engages a vessel having wells suitable for retaining liquid (Ibid., column 2 line 4-10, and Fig. 3).

Feygin shows that this device is used for carrying-out solid-phase synthesis of chemical compounds (Ibid. column 5 line 54 to column 6 line 19). The purpose of Feygin's apparatus is for chemical operations (Ibid. Abstract), to link a reactive functionality to a solid support so the functionality can be modified and then cleaved (Ibid. Fig. 7). The liquid in Feygin includes chemical building blocks for reacting with the reactive functionality, so that the reaction produces a chemical compound (Ibid. column 2 lines 16-27).

Nowhere does Feygin et al. show an apparatus for intermixing small objects and a liquid, in which the small objects are affinity beads and the liquid is a lysate containing proteins to be purified, which is the subject matter of claims 1 and 12 as here amended. Nowhere does Feygin show that the liquid is a lysate that contains proteins that become bound to affinity beads when the solution and the affinity beads are intermixed, as admitted in the Office action on p. 6 ¶5. In fact, the terms "affinity beads" and "protein" do not even appear in Feygin.

For these reasons also, claims 1 and 12 as here amended are novel in view of Feygin et al. under 35 U.S.C. §102(b). Claims 3-7, 10, 15, and 16 depend directly or indirectly from claims 1 or 12 and incorporate the subject matter of claims 1 or 12 as here amended and contain additional subject matter, and therefore these claims are also novel in view Feygin et al.

Therefore rejection of claims 1 and 12 as here amended and claims 3-7, 10, 15, and 16 under 35 U.S.C. §102(b) can be withdrawn, an action that is respectfully requested.

Claims as here amended are not obvious

The Office Action on pp. 5-7 ¶5 rejects claims 2, 11, 13, 14, and 17 under 35 U.S.C. §103(a) in light of Feygin et al. in combination with Reeve et al. (International patent application number WO 91/12079, published August 22, 1991) and/or Valkirs et al. (U.S. patent number 6,348,318, issued February 19, 2002). Applicants respectfully traverse.

As a preliminary matter, *Graham v. John Deere*, 383 U.S. 1 as part of the legal analysis under 35 U.S.C. §103(a) requires that the prior art be characterized as part of an obviousness rejection.

Claims 2 and 17 are herein canceled. The subject matter of claim 2 has been amended into claim 1 and the subject matter of claim 17 has been amended into claim 12. Independent claims 1 and 12 as here amended are characterized above.

Feygin et al. (U.S. patent number 6,315,957, issued November 13, 2001)

The Office action on p. 7 ¶5 alleges that Feygin shows a device capable of allowing proteins in a solution to move through the porous bottom of the receptacle. Applicants respectfully disagree.

Feygin is characterized above. This reference shows that this device is used for carrying-out solid-phase synthesis of chemical compounds (Ibid. column 5 line 54 to column 6 line 19), i.e., chemical reactions, and does not teach or suggest an apparatus for purification of proteins.

One of ordinary skill in the art of organic chemistry and chemical synthesis would have understood at the time the application was filed that solid-phase synthesis resins shown in Feygin are unsuitable for affinity purification of proteins. Because resins shown in Feygin for solid-phase synthesis of chemical compounds are cross linked with a reactant, for example, divinylbenzene functionalized with amino, hydroxy, carboxy, or halo groups, grafted copoly

beads, polyacrylamide beads, latex beads, dimethylacrylamide beads cross linked with N,N'-bis-acryloyl ethylene diamine, and glass particles coated with hydrophobic polymer (Ibid. column 6 lines 10-20), these resins specifically react with a chemical building block for chemical modification and reaction.

Further, the word "protein" is not even mentioned in this reference. Feygin, therefore fails to teach or suggest a protein in a liquid that flows through a permeable portion of a receptacle to intermix with the affinity beads, as is the subject matter of claim 1 as here amended. Nowhere does Feygin et al. teach or suggest that the liquid is a lysate that contain proteins that become bound to the affinity beads when the solution and the affinity beads are intermixed, as admitted in the Office action on p. 6 ¶5.

Reeve et al. (Internation patent application number WO 91/12079, published August 22, 1991)

Reeve et al., as a whole, shows methods of isolating macromolecules using magnetically attractable beads. In fact, Reeve et al. is titled, "[m]ethod to isolate macromolecules using magnetically attractable beads which do not specifically bind the macromolecules." [emphasis added].

Reeve shows a method of treating a solution of a polymer by the use of magnetically attractable beads, the method includes the steps of: suspending magnetically attractable beads in a solution; and applying a magnetic field to draw down a precipitate of the beads and the associated polymer (Reeve, p. 4 lines 6-20). In fact, Reeve's states, "[t]he key to the invention is the use of magnetically attractable beads ..." (Ibid., p. 4 lines 21-23; emphases added). Reeve shows only separation methods based on the use of magnetic beads and application of a magnetic field (Ibid. p. 6-16).

Reeve's further states:

> It is a feature of the invention that the magnetic beads do not specifically bind the polymer. By this feature, the present invention is distinguished from many prior techniques which involve providing a coating on the surface of magnetic beads designed to specifically bind the substance to be drawn down out of solution [Ibid. p. 5 line 32 to p. 6 line 2; emphases added].

Nowhere does Reeve teach or suggest an apparatus for intermixing small objects that are affinity beads and a liquid in which the liquid is a lysate containing proteins to be purified, including at least one receptacle for receiving and retaining the small objects such that at least a

portion of the receptacle is permeable to permit the liquid containing proteins to be purified to flow through the portion to intermix with the affinity beads when the receptacle is inserted into a vessel containing the liquid.

The separation method used in Reeve is based on an entirely different technology than the separation system of the present claims. Factual analysis shows that the separation method used in Reeve requires magnetically attractable beads and application of a magnetic field, which is a completely different from the filtering technology of the present claims. The technology in Reeve does not teach or suggest any receptacle that is permeable of any type. Further, the technology is Reeve does not teach or suggest a vessel to which is inserted the receptacle that is permeable.

Valkirs et al. (U.S. patent number 6,348,318, issued February 19, 2002)

Valkirs, as a whole, shows a method that involves the use of magnetic particles to concentrate target analytes (Valkirs, Abstract, and Fig. 1). Valkirs is titled, "[m]ethods for concentrating ligands using magnetic particles". (emphasis added) Valkirs shows types of magnetic beads, for example, iron oxide particles, and commercial suppliers of these magnetic beads (Ibid. column 5 lines 14-48).

The method of Valkirs involves adding to a sample a target analyte binding moiety that forms a target complex and adding a magnetic bead to which is attached a capture moiety that forms a magnetic bead-bound target complex (Ibid. column 1 lines 54-61). A magnetic field is applied to the sample to collect the magnetic bead-bound target complex (Ibid. column 1 lines 61-66).

Separation of target molecules involves application of a magnetic field to concentrate the sample at the bottom of a container and aspirating or pouring the liquid from the container (Ibid. column 12 lines 1-14).

Nowhere does Valkirs teach or suggest an apparatus for intermixing small objects that are affinity beads and a liquid in which the liquid is a lysate containing proteins to be purified, including at least one receptacle for receiving and retaining the small objects such that at least a portion of the receptacle is permeable to permit the liquid containing proteins to be purified to flow through the portion to intermix with the affinity beads when the receptacle is inserted into a vessel containing the liquid.

The separation method used in Valkirs is based on an entirely different technology than the separation system of the present claims. Factual analysis shows that the separation method used in Valkirs requires magnetically attractable beads and application of a magnetic field, which is completely different from the filtering technology of the present claims. The technology in Reeve does not teach or suggest any type of receptacle that is permeable. Further, the technology is Reeve does not teach or suggest a vessel into which is inserted a receptacle that is permeable.

Legal analysis of references combined

To establish obviousness based on a combination of the elements disclosed in the prior art in the absence of any hindsight, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *Id.* The teaching or suggestion, not merely to make the claimed combination, but also of a reasonable expectation of success, must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488; 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Most if not all inventions arise from a combination of old elements. Courts consistently hold that employing hindsight and using the present application as a blueprint to pick and choose references to reconstruct the invention is impermissible. *In re Kotzab,* 217 F.3d 1365, 1369; 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000). Thus, every element of a claimed invention may often be found in the prior art. *Id* at 1367-1370. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *Id* at 1370.

Proposed modification in combination renders each of the cited prior art unsatisfactory for its intended purpose

The Manual of Patent Examining Procedure requires that in combining references to reject claims as obvious, if a proposed modification would render the prior art technology unsatisfactory for its intended purpose, then there can be no suggestion or motivation to make the proposed modification. *Manual of Patent Examining Procedure,* §2143.01, (8th Ed. Rev.2, May 2, 2004); *In re Gordon,* 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Applicants show below that substantial changes to the technologies would have been required to be made in each

of Reeve and Valkirs in making a combination with Feygin and that these substantial changes, would have rendered each technology in Reeve and Valkirs unsuitable for each asserted use.

The factual analysis of both Reeve and Valkirs above show that the technology in both references require magnetic beads and application of a magnetic field to achieve separation of a target molecule from a solution. To complete the separation step in the methods of each of Reeve and Valkirs, application of the magnetic field is required to concentrate the sample at the bottom of a container, and removal of the remaining liquid portion is achieved by aspirating or pouring from the container.

In contrast, in Feygin the reactants are removed, i.e., solid is separated from liquid using a plate with a plurality of holes in which a mesh-like material projects through each hole in the plate (Feygin et al. column 1 lines 63-67, and Fig. 2). Feygin uses a technology without magnetic beads or application of a magnetic field.

To modify Reeve and Valkirs to combine with Feygin, to attempt to reconstruct the claims of the present invention, would require omitting the magnetic beads, omitting application of the magnetic field, and omitting the aspirating or pouring step from Reeve and Valkirs. Neither of the technologies in Reeve nor Valkirs would function for its intended purpose if these elements are omitted. To modify Feygin to use magnetic beads requires omitting the permeable region and the wash, and adding magnetic beads and a magnetic, which would render the chemical technology in Feygin unsuitable. Therefore combining Reeve and/or Valkirs with Feygin would have rendered these references unsatisfactory for their intended purposes.

Thus, by these legal criteria, these references cannot be combined to make the proposed modification.

Lack of motivation to combine cited references

To establish a case of obviousness, a reasonable expectation of success must be found in the prior art, and not based on Applicants' disclosure. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills,* 916 F.2d 680, 16 U.S.PDQ 1430 (Fed. Cir. 1990).

Applicants show below that none of the prior art references, taken as a whole at the time the application was filed, would have motivated or suggested to one of ordinary skill, at the time

the present application was filed, to combine these references, let alone having motivated one to have invented the claims, let alone having provided an expectation of success had the combination been made.

Valkirs et al. (2002), the most recent of the references, fails to cite Feygin et al. (2001), and neither Valkirs et al. nor Feygin et al. cite Reeve et al. (1991), the earliest of the cited references. For at least this reason, one of ordinary skill in the art at the time the present application was filed would have had no motivation to combine Feygin et al. with either or both of Valkirs et al. and Reeve et al., to have arrived at the claims of the present invention.

The factual analysis above shows that there is no suggestion from the prior art to combine the cited references to arrive at the claimed apparatus. The separation technology in both Reeve et al. and Valkirs et al. is based on use of magnetic beads and a magnetic field to separate target molecules from a solution. Nowhere do either Reeve or Valkirs teach or suggest an apparatus for intermixing small objects that are affinity beads and a liquid in which the liquid is a lysate containing proteins to be purified, including at least one receptacle for receiving and retaining the small objects such that at least a portion of the receptacle is permeable to permit the liquid containing proteins to be purified to flow through the portion to intermix with the affinity beads when the receptacle is inserted into a vessel containing the liquid. In fact, the technologies in Reeve and Valkirs do not use a permeable receptacle of any type.

In contrast to the technologies in Reeve and Valkirs, Feygin shows a device for carrying-out solid-phase synthesis of chemical compounds (Ibid. column 5 line 54 to column 6 line 19). Feygin fails to teach or suggest any liquids that are lysates, let alone liquids containing protein. In fact, the word "protein" as found in claims 1 and 12 as here amended is not even mentioned in Feygin. Thus, nowhere does Feygin teach or suggest proteins that flow through a permeable portion of a receptacle to intermix with affinity beads for purification, as admitted in the Office action on p. 6 ¶5. As Feygin is clearly based on different technology compared to Reeve and Valkirs, one of ordinary skill simply would not have combined these references, let alone used the combination to arrive at the subject matter of the present claims.

Yet another reason that the prior art in combination fails to provide motivation, suggestion, or desirability to combine the references cited in the Office Action to arrive at the present claims, is demonstrated by the fact that one of ordinary skill at the time the present

invention was made could have considered many different combinations of what is shown in Feygin, Reeve, and/or Valkirs, none of which however are the apparatus of Applicants' claims as here amended. Applicants below provide three examples of such combinations that could have potentially been made by combining Feygin, Reeve, and/or Valkirs, none of which are the present claims.

A first combination of the references is: adding Reeve or Valkir's magnetic beads to the liquid containing chemical building blocks and applying a magnetic field as shown in Reeve and Valkirs, to the chemical synthesis technology in Feygin et al. Feygin's reactive resins could be mixed with magnetic beads, or attached to magnetic beads.

A second combination is: applying the aspirating or pouring step shown in Reeve and Valkirs to the apparatus shown in Feygin to separate a protein of interest from a liquid. Feygin's reactive resins could be separated from soluble products or unreacted chemicals by pouring or aspirating.

A third combination is: adding the solid-phase synthesis resins of Feygin to the liquid in the vessel of Reeve or Valkirs, and applying Reeve or Valkir's magnetic field to separate the resins from a liquid.

It is clear from this partial list of possible combinations that one of ordinary skill could have made, had one been motivated to read the three references in combination, that none of these combinations are the subject matter of the claims as here amended. In fact, however, all are potential technical combinations of Feygin, Reeve, and/or Valkirs that one of ordinary skill at the time the present application was made might have been motivated to try.

As none of the cited references would have provided any motivation to one of ordinary skill in the art, at the time the present application was filed, to have combined any elements of these primary references to arrive at Applicants' present claims, for at least this reason also a case for obviousness of the claims has not been established. Rather, making the combination is using Applicants' own Specification as a blueprint to reconstruct the invention, which is impermissible hindsight.

Further, one of ordinary skill in the art, reading the cited references, would have had no teaching or suggestion that this combination would have been successful. Neither Reeve nor Valkirs teach or suggest that the separation techniques shown in these references could

successfully be combined with a pocket plate for chemical synthesis. Nowhere does Feygin teach or suggest that the device shown could successfully be combined with any purification techniques to bind proteins for purification. Therefore, one of ordinary skill in the art would not have been taught or given the suggestion that combining Feygin with Reeve and/or Valkirs would have been successful in arriving at the subject matter of the claims as here amended.

For any of these reasons, claims 1 and 12 as here amended are not obvious in light of Feygin et al. in combination with Reeve et al. and/or Valkirs et al. Claims 11, 13, and 14 depend directly or indirectly from claims 1 or 12 and incorporate the subject matter of claims 1 or 12 as here amended and contain additional subject matter, and therefore these claims also are not obvious in light of Feygin et al. in combination with Reeve et al. and/or Valkirs et al.

Therefore rejection of claims 1, 11, 12, 13, and 14 under 35 U.S.C. §103(a) can be withdrawn, an action which is respectfully requested.

Claims as here amended are definite

The Office action on p. 2 ¶1 rejects claims 1 and 12 under 35 U.S.C. §112 ¶2 alleging that the term "small" is indefinite.

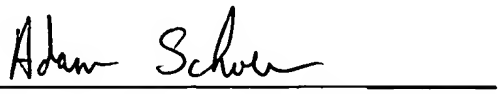
Claims 1 and 12 as here amended are directed to an apparatus for intermixing small objects and a liquid, in which the small objects are affinity beads and the liquid is a lysate containing proteins to be purified.

Therefore, rejection of claims 1 and 12 under 35 U.S.C. §112 ¶2 can be withdrawn, an action that is respectfully requested.

Summary

On the basis of the foregoing amendments and reasons, Applicants respectfully submit that the pending claims are in condition for allowance, which is respectfully requested. If there are any questions regarding these remarks, the Examiners are invited and encouraged to contact Applicants' representatives at the telephone number provided.

Respectfully submitted,



Adam M. Schoen Reg.Number 58,576
Sonia K. Guterman Reg.Number 44,729
Attorneys for Applicants
Lawson & Weitzen, LLP
88 Black Falcon Ave., Suite 345
Boston MA 02210-2481
Tel: (617) 439-4990
Fax: (617) 439-3987
Customer Number 48425

Dated: January 10, 2007